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ARSAG

Aerial Refueling Systems Advisory Group

An Introduction

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NAVAIR

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Overview



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- Background
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- Organization
- Functions
- Conferences
- Accomplishments
- Special Projects



ARSAG Background



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- **Established 1978 HQ SAC and ASC, Navy, Charter Developed**
- **Second meeting 1978, HQ SAC, Industry participation, ALC, MAJCOMS, etc.**
- **Rotary wing aircraft participation commenced, Army, 1981, charter modified**
- **International in 1983, charter modified to include international**
- **International Meetings:**
 - **United Kingdom, 1987**
 - **Australia, 1993,**
 - **Germany, 1995,**
 - **Canada, 1999**
 - **Spain, 2005**
- **NATO participation commenced, 1993**

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ARSAG's Importance to You



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- **ARSAG is an open forum for addressing aerial refueling issues with experts in their aerial refueling fields**
- **Operational and training procedures**
- **New aerial refueling concepts and ideas**
- **New technology and development**
- **Lessons learned documents for aerial refueling boom/receptacle and probe/drogue tanker and receiver aircraft**



ARSAG's Importance to You, *continued*



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- **Draft aerial refueling technical guide documents for coordination**
 - **Military guide documents development**
 - **Technical exhibits conversion to military specifications**
 - **Specifications updated**
 - **International standardization documents**
- **Aerial Refueling Procedures**
 - **Draft documents, national**
 - **Draft documents, international**



ARSAG's Importance to You, *continued*



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- **Standardization of critical information**
 - **Interfaces**
 - **Terminology**
 - **Procedures**
- **Tanker / receiver clearance documentations repository**
- **Resolve operational issues**
 - **Fuel leakage**
 - **Tanker / receiver compatibility**
 - **Safety**
 - **Procedural**
 - **Training**



ARSAG Organization



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▪ Steering Group

- International Military, Air Forces, Ministries of Defense
- United States DOD, Military Services, Air Force, Navy, Army, Marines, Air Force Reserves, Air National Guard
- NATO

▪ Chairs of the Eleven Panels

- Operations
- Training
- Reliability & Maintainability
- Safety
- Studies & Analysis
- Interoperability Procedures & Documentation

- Advanced Concepts
- Industry
- System Design
- Lighting & Markings
- Test & Evaluation

▪ Board of Directors

▪ Executive Director

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ARSAG Functions



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- **Annual Conference**
- **Planning Meeting, Annual**
- **Special Projects Meetings, two to three annually**
- **Facilitate, Participate in and Host: DOD Joint Standardization Board for Aerial Refueling Systems**



ARSAG Conferences



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- **Monday: Pre-conference Workshop, DOD Joint Standardization Board for Aerial Refueling Systems Meets**
- **Tuesday - Thursday: General Assembly, Timely Reports and Briefings**
 - **military**
 - **industry**
- **Industry exhibits**
 - **airframe manufacturers**
 - **aerial refueling hardware manufacturers**
- **Break-out meetings**
- **Thursday: Tour Nearby Military Installation**



ARSAG Accomplishments



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- **Performance and Interface Survey**
- **USAF/USN Memorandum of Understanding**
- **KC-135 Pressure Regulation and Through-the-Boom Communication System Support**
- **Tanker Tail Mounted Flood Light**
- **Revised STANAG 3447 (coupling insert & nozzle fix)**
- **Generic Clearance Process**
- **ATP-56 Standard Procedures Document Development Support of UK and NATO (1992-present)**
- **Multipoint Drogue KC-135/KC-10 Support**
- **Revised STANAG 3447 Interoperability Probe/Drogue Drogue Clearance Envelope**
- **Test & Evaluation Instrumentation Guide Document**
- **DOD Joint Standardization Board for Aerial Refueling Systems Chartered**



ARSAG Projects Completed



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- **STANAG 3447 Rev. 4 Probe-Drogue Interface**
- **Aerial Refueling Pressure Definitions & Terms**
- **Aerial Refueling Clearance Process Guide**
- **Receiver aircraft Closure Rates**
- **Aerial Refueling Lights/Formation Aids/Markings**



ARSAG Projects In Process



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- **Tanker Drogue Status Lights**
- **Aerial Refueling Equipment Maintenance Guide Document**
- **MA-2 Nozzle and MA-2,-3,-4 Coupling Pressure Regulation**
- **STANAG 7191 (Boom-Receptacle Interface)**
- **STANAG 3447 (Probe-Drogue Interface) Guidance Document**
- **World Wide Tanker and Receiver Listing**



ASRAG Planned Projects



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- **Technical requirements for commercially developed tankers**
- **Boom to Drogue Adapter (BDA) Kit enhancement considerations**
- **AR Training Guidance Document**
- **Update the Glossary of AR Terminology**
- **Advance/Future AR technical requirements and operational considerations**



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Aerial Refueling Today



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Aerial Refueling Future



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Questions?